

What is claimed is:

1. A DC/DC converter comprising:

an output transistor for converting an input voltage into an output voltage having a predetermined voltage level and then outputting the output voltage; and
an output voltage adjustment capacitor for preventing an overcurrent from flowing through the output transistor at start-up,

wherein, during most of a period after the start-up until a voltage at one end of the output voltage adjustment capacitor reaches the predetermined voltage level, the output voltage and the voltage at one end of the output voltage adjustment capacitor vary in such a way as to describe curves substantially similar to each other.

2. A DC/DC converter comprising:

an output transistor for converting an input voltage into an output voltage having a predetermined voltage level and then outputting the output voltage; and
an output voltage adjustment discharge circuit for preventing an overcurrent from flowing through the output transistor at shut-down,

wherein, during most of a period after the shut-down until a voltage at one end of the output voltage adjustment discharge circuit reaches the predetermined voltage level, the output voltage and the voltage at one end of the output voltage adjustment discharge circuit vary in such a way as to describe curves substantially similar to each other.

3. A DC/DC converter comprising:

an output switching device for converting an input voltage into an output voltage having a predetermined voltage level and then feeding the output voltage to a load;

a driver for driving the output switching device according to an output current to the load;

a variable reference voltage source for generating a variable reference voltage that starts rising at start-up and/or that starts falling at shut-down;

a first constant reference voltage source for generating a first constant reference voltage;

a second constant reference voltage source for generating a second constant reference voltage;

an error voltage generator for finding an error voltage between the output voltage and a first reference voltage; and

an output current controller for controlling how the driver drives the output switching device according to a differential voltage between the error voltage and a second reference voltage,

wherein the error voltage generator uses as the first reference voltage whichever of the variable reference voltage and the first constant reference voltage is lower, and the output current controller uses as the second reference voltage whichever of the variable reference voltage and the second constant reference voltage is lower.

4. A DC/DC converter as claimed in claim 3,

wherein the variable reference voltage rises and/or falls more gently than the

error voltage.

5. A DC/DC converter as claimed in claim 3,

wherein the variable reference voltage source includes:

a first constant current source having one end thereof connected to a supply voltage line;

a capacitor having one end thereof connected to the other end of the first constant current source and having the other end thereof grounded;

a second constant current source having one end thereof connected to the other end of the first constant current source and having the other end thereof grounded,

wherein a voltage at a node at which the first and second constant current sources and the capacitor are connected together is used as the variable reference voltage.

6. A DC/DC converter as claimed in claim 3,

wherein an output end of the error voltage generator is grounded through a phase compensation resistor and a phase compensation capacitor.

7. A DC/DC converter as claimed in claim 3,

wherein the output switching device is a pair of field-effect transistors connected in series between different potentials.